

Claims:

1. New chelidonine derivatives having an anti-tumoral effect, selected from the group comprising ~~chelidonine acetate~~, chelidoninyl trifluoroacetate, chelidoninyl trichloromethyl carbonate, chelidoninyl methyl succinate, chelidoninyl ethyl oxalate, N-(3-trifluoromethyl-phenyl)chelidoninylurethane, phenylalanine chelidoninyl ester, proline chelidoninyl ester and/or alanine chelidoninyl ester.
2. The chelidonine derivatives according to claim 1, characterized in that the anti-tumoral effect is modulation of cell growth, cell differentiation and/or cell division.
3. A pharmaceutical agent comprising at least one chelidonine derivative according to claim 1 or 2 and/or a pharmaceutical agent in accordance with any of claims 3 to 5, optionally together with a tolerable pharmaceutical carrier, adjuvant and/or vehicle.
4. The pharmaceutical agent according to the preceding claim, characterized in that the carriers are selected from the group comprising fillers, diluents, binders, humectants, disintegrants, dissolution retarders, absorption enhancers, wetting agents, adsorbents and/or lubricants.
5. The pharmaceutical agent according to any of claims 3 or 4,

characterized in that
the carriers are liposomes, siosomes and/or niosomes.

6. Use of a chelidonine derivative ~~according to claim 1 or 2 and/or of a pharmaceutical agent according to any of claims 3 to 5~~ chosen from the group comprising chelidonine acetate, chelidoninyl trifluoroacetate, chelidoninyl trichloromethyl carbonate, chelidoninyl methyl succinate, chelidoninyl ethyl oxalate, N-(3-trifluoromethylphenyl)chelidoninylurethane, phenylalanine chelidoninyl ester, proline chelidoninyl ester and/or alanine chelidoninyl ester in the prophylaxis, therapy, follow-up and aftercare of diseases associated with cell growth, cell differentiation and/or cell division.
7. The use according to the preceding claim, characterized in that
the disease is a tumor disease.
8. The use according to the preceding claim, characterized in that
the tumor diseases are selected from the group of neoplastic tumors, inflammatory tumors and/or abscesses, effusions and edema.
9. The use according to the preceding claim, characterized in that
the tumor is a solid tumor or a leukemia.
10. The use according to the preceding claim, characterized in that
the solid tumor is a tumor of the urogenital tract and/or gastrointestinal tract.
11. The use according to claim 6, characterized in that
the tumor is a colon carcinoma, stomach carcinoma, pancreas carcinoma, small intestine carcinoma, ovarian

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carcinoma, cervical carcinoma, lung carcinoma, prostate carcinoma, mammary carcinoma, renal cell carcinoma, a brain tumor, head-throat tumor, liver carcinoma, and/or a metastase of the above tumors.

12. The use according to claim 6,
characterized in that
the solid tumor is a mammary, bronchial, colorectal,
and/or prostate carcinoma and/or a metastase of the
above tumors.
13. The use according to claim 6,
characterized in that
the tumor of the urogenital tract is a bladder carcinoma
and/or a metastase of such tumors.
14. The use according to any of claims 6 to 13,
characterized in that
said follow-up is monitoring the effectiveness of an
anti-tumor treatment.
15. The use according to any of the preceding claims,
characterized in that
at least one chelidone derivative according to claim 1
or 2 and/or a pharmaceutical agent according to any of
claims 3 to 5 are employed in the prophylaxis, preven-
tion, diagnosis, attenuation, therapy, follow-up and/or
aftercare of metastasizing, invasion and/or angiogene-
sis.
16. The use according to any of the preceding claims,
characterized in that
said follow-up is monitoring the effectiveness of an
anti-tumor treatment.
17. The use according to any of the preceding claims,
characterized in that
at least one chelidone derivative according to claim 1
or 2 and/or a pharmaceutical agent according to any of
claims 3 to 5 are used in a combination therapy.

18. The use according to the preceding claim,
characterized in that
said combination therapy comprises a chemotherapy, a
treatment with cytostatic agents and/or a radiotherapy.
19. The use according to the preceding claim,
characterized in that
the combination therapy comprises an adjuvant, biologi-
cally specified form of therapy.
20. The use according to the preceding claim,
characterized in that
said form of therapy is an immune therapy.
21. The use according to any of the preceding claims to in-
crease the sensitivity of tumor cells to cytostatic
agents and/or radiation.
22. The use according to any of the preceding claims for in-
hibiting the viability, the proliferation rate of cells
in order to induce apoptosis and/or cell cycle arrest.
23. The use according to any of the preceding claims,
characterized in that
at least one chelidone derivative according to claim 1
or 2 and/or a pharmaceutical agent according to any of
claims 3 to 5 are prepared as gel, poudrage, powder,
tablet, sustained-release tablet, premix, emulsion,
brew-up formulation, drops, concentrate, granulate,
syrup, pellet, bolus, capsule, aerosol, spray and/or in-
halant and/or inhalant and applied in this form.
24. The use according to the preceding claim,
characterized in that

at least one chelidonine derivative according to claim 1 or 2 and/or a pharmaceutical agent according to any of claims 3 to 5 are present in a preparation at a concentration of from 0.1 to 99.5, preferably from 0.5 to 95.0, and more preferably from 20.0 to 80.0 weight per cent.

25. The use according to the preceding claim, characterized in that the preparation is employed orally, subcutaneously, intravenously, intramuscularly, intraperitoneally and/or topically.
26. The use according to any of the preceding claims, characterized in that at least one chelidonine derivative according to claim 1 or 2 and/or a pharmaceutical agent according to any of claims 3 to 5 are employed in overall amounts of from 0.05 to 500 mg per kg, preferably from 5 to 100 mg per kg body weight per 24 hours.
27. A method for the preparation of the chelidonine derivatives according to claim 1 or 2, characterized in that chelidonine acetate is obtained by reacting chelidonine with pyridine and acetic anhydride.
28. The method according to the preceding claim, characterized in that a mixture of chelidonine, pyridine and acetic anhydride is incubated for at least 12 hours at room temperature and this mixture is subsequently poured in ice water, so that a raw product precipitates, and the raw product is extracted with ether.

29. The method according to claim 27,
characterized in that
chelidoninyl trifluoroacetate, chelidoninyl trichloro-
methyl carbonate, and/or chelidoninyl methyl succinate
are obtained by reacting chelidonine with chloroform and
the respective acid chloride, the mixture of chelidon-
ine, chloroform and the respective acid chloride being
added with pyridine, and the resulting mixture being in-
cubated for at least 4 hours at room temperature.
30. The method according to claim 27,
characterized in that
chelidoynil ethyl oxalate is obtained by reacting cheli-
donine monophosphate with oxalic ester chloride.
31. The method according to claim 27,
characterized in that
N-(3-trifluoromethylphenyl)chelidoninylurethane is ob-
tained by reacting chelidonine monohydrate with 3-tri-
fluoromethylphenylisocyanate.
32. The method according to claim 27,
characterized in that
phenylalanine chelidoninyl ester is obtained by reacting
chelidonine monohydrate with N-(9-fluorenylmethyl-
oxycarbonyl)-L-phenylalanine.
33. The method according to claim 27,
characterized in that
proline chelidoninyl ester is obtained by reacting
chelidonine monohydrate with N-(9-fluorenylmethoxy-
carbonyl)-L-proline.
34. The method according to claim 27,
characterized in that

alanine chelidoninyl ester is obtained by reacting chelidonine monohydrate with N-(9-fluorenylmethyloxy-carbonyl)-L-alanine.

35. A method for the treatment of a tumor disease, characterized in that
at least one chelidonine derivative according to claim 1 or 2 and/or a pharmaceutical agent according to any of claims 3 to 5 is contacted with an organism, preferably a human or an animal.
36. The method according to the preceding claim, characterized in that
said contacting is effected orally, via injection, topically, vaginally, rectally and/or nasally.
37. A method for the production of a pharmaceutical agent for the treatment of a tumor disease, characterized in that
at least one chelidonine derivative according to claim 1 or 2 and/or a pharmaceutical agent according to any of claims 3 to 5 are employed together with a pharmaceutically tolerable carrier.
38. A kit comprising at least one chelidonine derivative according to claim 1 or 2 and/or a pharmaceutical agent according to any of claims 3 to 5, optionally together with information for combining the contents of the kit.
39. Use of the kit according to the preceding claim in the prophylaxis or therapy of tumor diseases.